



International Amateur Radio Union Region 1

Europe, Middle East, Africa and Northern Asia

Founded 1950



General Conference, Davos, 11 to 16 September 2005

SUBJECT		COMMITTEE C5 – Minutes of Meeting 02	
Society		IARU Region 1	Country:
Committee:	C5	Paper number:	DV05_C5_meeting [02] Minutes

Chairman PA0EZ was taken ill and Michael Kastelic, OE1MCU took the chair. The meeting wished PA0EZ a quick recovery.

Daily proxies:

- NRRL for IRA (Iceland)
- URE for URA (Andorra)
- ÖVSV for USKA (Switzerland)
- CRC for SARA (Slovakia)
- SARL for MRASZ (Hungary)

9. Bandplanning

9a. General principles

DV05_C5_09, introduced by EDR is a general proposal asking for a bandwidth column to be added into the 70 MHz, 435MHz and 1.3 GHz bandplans. For the 50 MHz and 145 MHz bandplans this was done already in the San Marino meeting. DV05_C5_43 by EDR is a more detailed document on the same issue. The meeting supported the principle including the maximum bandwidths into the band plans. The maximum bandwidth columns will be added to the 70 MHz, 435 MHz and 1.3 GHz bandplans. These 70 MHz, 435 MHz and 1.3 GHz bandplans can be found in Annex Rec 04-A. The meeting felt that to allow more flexibility for future developments, no bandwidth columns should be added to the higher bands at the moment. The definition of bandwidth needs to be looked at. If any changes in the issue of defining maximum bandwidth need to be done into the handbook, a proposal is expected for the next meeting

Action All

See recommendation DV05_C5_Rec_04

9b. 50 MHz

DV05_C5_05, introduced by EDR is clarified in DV_C5_42, also by EDR. EDR withdraw the part A of their proposal in DV05_C5_42 (removing Mode column from the bandplans). The problem of mentioning names of rapidly evolving MGM modes (e.g. FSK441, JT44) in the bandplans was discussed. Into the handbook a remark shall be written reminding that the names of MGM modes for specific usage (e.g. meteor scatter) can change, for example JT44 has been replaced by JT6M. Therefore if for example FSK441 will be replaced by FSK882 this will be reflected in the bandplans only after a considerable delay. This delay should not be used as an excuse to try to block the evolution of MGM modes.

Action Chairman

DV05_C5_40 was introduced by VERON. In Vienna 2004 PA2DW was tasked to submit a proposal for a new bandplan for 50 MHz. The proposed bandplan was discussed and it was decided that only a PSK31 centre of activity into 50.285 MHz should be added into the current bandplan. After this VERON withdraw the rest of its proposal.

9c. 145 MHz

DV05_C5_19 was introduced by UBA suggesting that the frequency 144.144 MHz be the calling frequency for MGM EME/Tropo/FAI modes with bandwidths less than 500 Hz. DARC, VERON and RSGB were against this proposal. They suggested that the national VHF managers should ask their EME community for their opinion on this issue. The outcome of the ongoing EME conference should also be taken into account.

Action All, Chairman

DV05_C5_04 by DARC based on the ideas originating from the ARDF working group requests that frequencies used for ARDF beacons should be mentioned in the 145 MHz bandplan. The recommended frequencies in Region 1 ARDF rules are 144,500 – 144,900 MHz. A footnote recognising this will be created. Also footnote f needs to be amended to allow the ARDF beacons.

See recommendation DV05_C5_Rec_05

9d. 435 MHz

DV05_C5_09 and DV05_C5_43 are proposals by EDR about including maximum bandwidth into the 70 MHz, 435 MHz and 1.3 GHz bandplans. This was already adopted under agenda point 9a.

DV05_C5_21 is an information paper by RSGB on frequencies used on VHF/UHF for emergency communications. Also DV05_C4_34 by SRAL on emergency communications mentions VHF/UHF bands. A contact point for collection of information on nationally used emergency frequencies will be published in the next VHF newsletter.

Action Chairman, G4ASR

Once the contact point for collection is published in the VHF newsletter, VHF managers shall send the requested information accordingly.

Action All

DV05_C5_Rec_04

A column with maximum bandwidths will be added to 70 MHz , 435 MHz and 1,3 GHz bandplans. The resulting bandplans are in Annex Rec 04-A.

Annex Rec 04-A:

70.0 - 70.5 MHz BANDPLAN

Frequency (MHz)	Maximum Bandwidth	MODE	Usage
70.000	500 Hz	TELEGRAPHY, MGM	Beacons 70.030 Personal beacons
70.050	2700 Hz	TELEGRAPHY, SSB, MGM	70.150 MS calling 70.185 Crossband center of activity 70.200 Telegraphy/SSB calling
70.250	12 kHz	AM/FM a)	70.260 AM/FM calling
70.294			70.3000 RTTY/FAX 70.3125 Packet radio 70.3250 Packet radio

70.500	12 kHz	FM CHANNELS, 12.5 kHz spacing	 70.4500 FM calling 70.4625 70.4750 70.4875 Packet radio
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a) No MGM traffic between 70.250 and 70.294 MHz.

430 - 440 MHz BANDPLAN

Frequency (MHz)	Maximum Bandwidth	MODE	Usage
430.000	20 kHz	ALL MODES	430.025 - 430.375 FM repeater output-channel freqs (F/PA/ON), 12,5 kHz spacing, 1.6 MHz shift (f)
			430.400 - 430.575 Digital communication link channels (g) (j)
SUB-REGIONAL (national bandplanning) (d)			430.600 - 430.925 Digital communications repeater channels (g) (j) (l)
			430.925 - 431.025 Multi mode channels (j) (k) (l)
			431.050 - 431.825 Repeater input channel freqs (HB/DL/OE), 25 kHz spacing, 7.6 MHz shift (f)
431.981			431.625 - 431.975 Repeater input channel freqs (F/PA/ON), 12.5 kHz spacing, 1.6 MHz shift
432.000	500 Hz	Telegraphy (a)	432.000 - 432.025 EME
			432.050 Telegraphy centre of activity
432.100			432.088 PSK31 centre of activity
432.100	2700 Hz	TELEGRAPHY, SSB, MGM	432.200 SSB centre of activity
			432.350 Microwave talkback centre of activity
432.399			432.370 FSK441 random calling
432.400	500 Hz	TELEGRAPHY, MGM	Beacons Exclusive (b)
432.490			
432.500	12 kHz	ALL MODES	432.500 Narrow-band SSTV
			432.500-432.575 Digital communications channels (by exception !!) (i)
			432.500-432.600 LINEAR TRANSPONDER IN(e)
			432.600 RTTY (ASK/PSK)
432.994			432.700 FAX (ASK)
			432.600-432.800 LINEAR TRANSPONDER OUT(e)
	432.594-432.981 REPEATER INPUT REGION 1 STANDARD, 25 kHz spacing, 2 MHz shift (Channel freq 432.600--432.975 MHz)		

			In the UK repeater OUTPUT channels.	
432.994	12 kHz	FM REPEATER	REPEATER INPUT REGION 1 STANDARD, 25 kHz spacing, 1.6 MHz shift (Channel freq 433.000--433.375 MHz) In the UK repeater OUTPUT channels.	
433.381				
433.394	12 kHz	FM	433.400	SSTV(FM/AFSK)
433.581			433.500	(Mobile) FM calling SIMPLEX CHANNELS, 25 kHz spacing, (Channel freq 433.400 - 433.575 MHz)
433.600	20 kHz	ALL MODES	433.600	RTTY (AFSK/FM)
			433.625 - 433.775	Digital communications channels (g) (h) (i)
			433.700	FAX channel (FM/AFSK)
434.000			433.800	APRS (only when 144.800 can not be used) Centre frequency of digital experiments as defined on note (m)
434.000	20 kHz (c)	ALL MODES & ATV (c)	434.450 - 434.575	Digital communications channels (by exception !!) (i)
434.594				
434.594	12 kHz (c)	FM & ATV(c)	REPEATER OUTPUT (region 1 system), 25 kHz spacing, 1.6 MHz shift, (Channel freq 434.600 -- 434.975 MHz) In the UK repeater INPUT channels	
434.981				
435.000	20 kHz (c)	ALL MODES	Satellite service & ATV (c)	
438.000				
438.000	20 kHz (c)	ALL MODES	438.025 - 438.175	Digital communications channel freqs (g)
ATV (c) & SUB-REGIONAL (national bandplanning) (d)			438.200 - 438.525	Digital communications repeater channels (g) (j) (l)
			438.550 - 438.625	Multi-mode (j) (k) (l)
			438.650 - 439.425	Repeater output channels (HB/DL/OE), 25 kHz spacing, 7.6 MHz shift, (f)
			439.800 -- 439.975	Digital communications link channels (g) (j)
440.000			439,9875	POCSAG centre

NOTES ON THE 430 - 440 MHz BANDPLAN

1.IARU REGION 1 BANDPLAN

The following notes are part of the officially adopted IARU Region 1 bandplan, and all member societies should strongly promote adherence to the recommendations made in these notes.

1.1. General

- i. In Europe no input or output channels of telephony repeaters shall be allowed to operate between 432 and 433 MHz.(From 1-1-2004 those frequencies arebetween 432.000 and 432.600 MHz
- ii. Beacons, irrespective of their ERP, will have to be located in the exclusive beacon part of the band.
- iii. FM telephony channels and Repeaters are specified in section VIb

1.2. Footnotes

- a. Telegraphy is permitted over the whole narrow_band DX part of the band; Telegraphy exclusive between 432.000 _ 432.100 MH. PSK31, however, can be used as well in this segment
- b. Within IARU Region 1 the frequencies for beacons with an ERP of more than 50 Watts are coordinated by the IARU Region 1 Beacon Coordinator (see section IX).
- c. i. ATV operators should be encouraged to use the microwave allocations where available, but may continue to use the 430 MHz band where permitted by the licensing authority. In case of interference between ATV and the Amateur Satellite Service ,the Satellite Service should have priority.
- ii. ATV transmissions in the 435 MHz band should take place in the segment 434.000 _ 440.000 MHz. The video carrier should be below 434.500 MHz or above 438.500 MHz. National societies should provide guidance to their members on the exact frequencies to be used, with due consideration of the interests of other users. In the segment 434.000 – 440.000 MHz, ATV operation is allowed to exceed the maximum bandwidth specified for different subsegments, into which the segment 434.000 – 440.000 MHz is divided.
(Noordwijkerhout 1987)
- d) The words "Sub_regional (national) bandplanning" appearing in IARU Region 1 VHF/UHF/Microwave bandplans mean the following:

In bands and sub_bands not available throughout Region 1, band_planning should be coordinated on a sub_regional basis between the countries where those bands and sub_bands are allocated to the Amateur Service. The words "national bandplanning" refer to bands/segments which are available only in a single country (such as the 70 MHz band allocation), or only in a few widely separated countries.(Torremolinos 1990)
- e) At the IARU Region 1 Conference in Torremolinos (1990) the output band for linear transponders was extended from 432.700 to 432.800 MHz under the following condition:

The established use of 432.600 MHz for RTTY (ASK/PSK) and 432.700 MHz for FAX should be respected when installing linear transponders which use this allocation.

2. USAGE

The following notes are referring to the Usage column in the bandplan. As already set out in the introduction to section IIc, in the right amateur spirit operators should take notice of these agreements which are made for operating convenience, but no right to reserved frequencies can be derived from a mention in the Usage column or from the following notes (except where “exclusive”is mentioned”).

2.1. General

deleted

2.2. Footnotes

- f. The HB/DL/OE wide_shift repeater system, already in use for a long time, is valuable with a view to a better utilisation of the whole band. Hence IARU Region 1 endorses the system.
This also applies for the French repeater channel system, also adopted by the Netherlands and Belgium, which IARU Region 1 supports as a useful measure to fill a hitherto unused part of the band.
For the numbering of FM telephony channels see appendix 2 to this section
- g. In the Usage section of the 435 MHz bandplan the following frequency segments have been designated for digital communications:
 - i) 430.544 _ 430.931 MHz Extension of the 7.6 MHz repeater system input for digital comm.
438.194 _ 438.531 MHz Output channels for the above
 - ii) 433.619 _ 433.781 MHz
438.019 _ 438.181 MHz
 - iii) 430.394 _ 430.581 MHz For digital communication links
439.794 _ 439.981 MHz For digital communication links

With due regard to the band allocated to the Amateur Service by the national Administration, the interests of other users, possible interference from e.g. ISM, the specific digital technique or system to be accommodated etc., a sub_regional, or national choice may be made within the above segments.

- h. In those countries where 433.619 _ 433.781 MHz is the only segment of the 435 MHz band available for digital communications, modulation techniques requiring a channel separation exceeding 25 kHz should not be used. If different or incompatible use of this part of the frequency spectrum is contemplated in neighbouring countries, this use should be coordinated between the countries concerned with the aim of avoiding harmful interference.
- i. On a temporary basis, in those countries where 433.619 _ 433.781 MHz is the only segment of the 435 MHz band available for Digital Communications:
 1. Channels with centre frequencies 432.500, 432.525, 432.550, 432.575, 434.450, 434.475, 434.500, 434.525, 434.550 and 434.575 may be used for digital communications.
 2. Use of these channels must not interfere with linear transponders.
 3. Modulation techniques requiring a channel separation exceeding 25 kHz must not be used on these channels.

(De Haan, 1993)

- j. At the IARU Region 1 Conference in Torremolinos (1990) the following recommendation was adopted regarding the segments for repeaters and links, shown in footnote g:

For a repeater/link to be installed within 150 km of a national border, the member society should co_ordinate the frequency allocation and the technical (system) data with the member societies in neighbouring countries. Special attention should be paid to the common good practice of using directional antennas and the minimum power necessary.

As a matter of course this agreement is also valid for any link experiments carried out on the multi_mode channels in the segment 438.544--438.631 MHz. (De Haan, 1993).

- k. These multi_mode channels are to be used for experimenting with new transmission technologies (De Haan, 1993)
- l. In the United Kingdom the use of low_power speech repeaters on repeater channels in the segment 438.419--438.581 is allowed. Where necessary, frequencies will be coordinated with neighbouring countries (De Haan, 1993).
- m. Experiments using wide band digital modes may take place in the 435 MHz band in those countries that have the full 10 MHz allocation. These experiments should be in the all modes section around a frequency of 434 MHz, use horizontal polarisation and the minimum power required. These experiments are allowed to exceed the maximum bandwidths indicated in the bandplan. (Tel Aviv 1996)

1240 - 1300 MHz BANDPLAN

Frequency (MHz)	Maximum Bandwidth	MODE	Usage
1240.000	20 kHz	ALL MODES	1240.000-1241.000 Digital communications d)
1243.250			1242.025-1242.250 Repeater output, ch. RS1 - RS10
1243.250			1242.275-1242.700 Repeater output, ch. RS11- RS28
1260.000	d)	ATV	1242.725-1243.250 Packet radio duplex, ch. RS29 – RS50
			1258.150-1259.350 Repeater output, ch. R20 – R68

1260.000		SATELLITE SERVICE	
1270.000	d)		
1270.000	20 kHz	ALL MODES	1270.025-1270.700 Repeater input, ch. RS1 -- RS28 1270.725-1271.250 Packet Radio duplex, ch. RS29 -- RS50
1272.00	d)	ATV	
1290.994			Including DATV
1290.994	12 kHz	FM REPEATER INPUT,	RM0 (1291.000) 25 kHz spacing RM19 (1291.475)
1291.481			
1291.494	d)	ALL MODES	Repeater INPUT, ch. R20 – R68 Ch. R20 (1293.150) Ch. R68 (1294.350)
1296.000	500 Hz	TELEGRAPHY , MGM	1296.00-1296.025 Moonbounce 1296.138 PSK31 centre of activity
1296.150	2700Hz	TELEGRAPHY, SSB;MGM	1296.200 Narrow-band centre of Activity 1296.370 FKS441 MS calling 1296.400-1296.600 Linear transponder input 1296.500 SSTV 1296.600 RTTY 1296.700 FAX 1296.600-1296.800 Linear transponder output
1296.800	500 Hz	TELEGRAPHY, MGM	BEACONS EXCLUSIVE (b)
1296.994	12 kHz	FM REPEATER OUTPUT	RM0 (1297.000) 25 KHz spacing RM19 (1297.475)
1297.481	12 kHz	FM c)	SM20 (1297.500) (25 KHz spacing - SIMPLEX) 1297.500 FM centre of activity (25 KHz spacing - SIMPLEX) SM39 (1297.975)
1297.981			
1298.000	20 kHz	ALL MODES	1298.025-1298.500 Repeater output channel freqs, ch. RS1 -- RS28 1298.500-1300.000 Digital communications (within RS channels) d) 1298.725-1299.000 Packet-Radio duplex channel freqs, ch. RS29 -- RS40
1300.000			

NOTES ON THE 1240 - 1300 MHz BANDPLAN

1. IARU REGION 1 BANDPLAN

The following notes are part of the IARU Region 1 bandplan for this band, originally adopted during the IARU Region 1 Conference at Noordwijkerhout (1987), and all member societies should strongly promote adherence to the recommendations made in these notes.

For the specification of FM see section VIb

1.1. Footnotes

- a. Deleted
- b. Within IARU Region 1 the frequencies for beacons with an ERP of more than 50 Watts are coordinated by the IARU Region 1 Beacon Coordinator (see section IX).
- c. In countries where 1298 - 1300 MHz is not allocated to the Amateur Service (e.g. Italy) the FM simplex segment may also be used for digital communications.
- d. **Bandwidth limits according to national regulations.**

2. USAGE

The following note refers to the Usage column in the bandplan. As already set out in the introduction to section IIc, in the right amateur spirit operators should take notice of these agreements which are made for operating convenience, but no right to reserved frequencies can be derived from a mention in the Usage column.

2.1. General

During contests and bandopenings local traffic using narrow-band modes should operate between 1296.500 - 1296.800 MHz.

DV05_C5_Rec_05

The following footnote will be added to the 145 MHz bandplan:

Footnote i: It is recognised that in the IARU Region 1 rules for the Championships in Amateur Radio Direction Finding (ARDF) competitions, the frequencies for the unmanned beacons are in the segment 144.500 – 144.900 MHz. These beacons run low power and are on the air only during ARDF events.

The existing footnote f will be amended to read:

Footnote f: No unmanned stations shall use the all-mode segment, except for linear transponders and ARDF beacons. (Tel Aviv 1996, San Marino 2002)